was 29.38 inches (uncorrected), occurring at 7:35 a. m. on the 7th in 55° 51′ S., 66° 12′ W. The wind at the time was NW., force 8.

A report of the second gale was received from the British S. S. *Waikawa*, Suva, Fiji, to Vancouver. The observer, Mr. J. Haultain, states that a fresh gale began on the 12th, accompanied by a heavy confused sea and rain squalls. The lowest barometer recorded was 29.78 inches (uncorrected), this occurring at 3:15 a. m. on the 13th in 13° 37′ S., 177° 5′ W. The wind at this time was ESE., force 8. This gale lasted throughout the evening of the 13th and during that time the wind increased to force 9, with shifts from the SE., ESE., E., and ESE.

South Atlantic Ocean.—Of the cyclonic disturbances occurring in the South Atlantic Ocean during September, only one of any significance has been reported. This was a depression which appeared on the 14th off the coast of Uruguay and which until the 16th occasioned moderate to whole gales with heavy rain squalls and rough seas. The Danish S. S. *Oregon*, Capt. W. Muhldorff, Cardiff to Bahia Blanca, came within its influence on the 14th. Mr. L. Olsen, second officer, reports that the lowest pressure was 29.84 inches, occurring at 4 p. m. on the 15th in 33° 59′ S., 51° 40′ W. The wind which at this time was NNE., force 8, later shifted to E. and increased to force 9–10.

On the 16th the Dutch S. S. *Alchiba*, Capt. K. E. Dik, Rotterdam to Buenos Aires, encountered the same gale in 34° 30′ S., 53° 14′ W., reporting conditions similar to those experienced by the *Oregon*. Mr. J. P. Nieman, observer, states that the lowest barometer, 29.80 inches, was recorded at 8:28 a. m. on the 16th. The wind at this time was NW., force 7–8.

DETAILS OF THE WEATHER IN THE UNITED STATES

551.506 (73)

GENERAL CONDITIONS

ALFRED J. HENRY

The month may be characterized as cool east of the Rocky Mountains, warm west; heavy rains on the closing days in Atlantic coast districts, severe drought in Louisiana, parts of Texas and Mississippi, and deficient precipitation generally in the Rocky Mountain, and plateau regions, also in California, Nevada, eastern Washington, and eastern Oregon.

The usual details follow:

CYCLONES AND ANTICYCLONES

By W. P. DAY

The month was dominated by high-pressure areas, not of the swiftly moving cool-wave types, but areas of relatively high pressure generally moving in from the Pacific, becoming greatly enlarged and very persistent through frequent reinforcement from the Canadian interior. This condition was most noticeable during the second and third decades and the movement of LOWS was affected by it. That is, the polar-equatorial interchange of air was more north-south, the HIGHS being so frequently revived that they interfered with the normal easterly drift and the warm air of the Tropics moved northward between such high pressure systems in troughs or in more temporary formations of a definite cyclonic nature.

Two fully developed hurricanes were charted during the month. The first had been followed during the last days of August as it passed northwestward over the Leeward and Virgin Islands, but was not definitely located again until the 2d of September when it was about 400 miles southwest of Bermuda. Lack of reports again prevented a full knowledge of its movements until it reached the steamer lanes south of Halifax on the morning of the 4th and the south coast of Newfoundland the same evening. The second hurricane developed over the eastern portion of the Gulf of Mexico and had attained considerable intensity when it struck a small section of the Florida coast near Appalachicola.

FREE-AIR SUMMARY

By L. T. SAMUELS, Assistant Meteorologist

It is found from kite observations that the negative temperature departures at the surface for the month over the country east of the Rocky Mountains either decreased in magnitude or changed to positive with increase in elevation above the ground. The northern and eastern stations showed the strongest tendency toward maintaining relatively low mean temperatures in the upper levels. Notwithstanding this fact, the resultant winds for the month as determined from kite observations at Ellendale and Royal Center, two of the stations referred to above, had a larger southerly component and at Due West a smaller northerly component than the normal. This appears paradoxical unless we consider the relatively small resultant velocities usually obtained during a month where the ordinary procession of HIGHS and LOWS causes a continuous succession of northerly and southerly winds. As a rule the resultant winds for a month as determined from pilot-balloon observations agree closely with those found by kites. However, when the observations are not similarly distributed, as occurred this month at Due West, large differences are frequently found. For example, at the 1,500-m. level at this station the resultant wind determined from pilot-balloon observations was N. 73° W. 3.8, whereas that from kite observations was S. 84° E. 3.2, almost diametrically opposite, and yet of significant velocities. The cause of this difference is at once apparent when we learn that balloon and kite observations were possible on the same day only five times during the month, weather conditions prohibiting either one or the other or both on the remaining days.

The effects of the increasingly longer nights, especially at the more northern stations, become apparent at this season of the year in the temperature lapse-rates above the earth's surface. It is interesting to note the lati-